

a front end for identifying source elements in a source device program;  
and

5 a back end for generating the translation program having translation elements corresponding to translation of the identified source device program elements, the backend including a graphic user interface, the graphic user interface displaying the identified source device program elements aligned with the corresponding translation elements, the graphic user interface having an input unit, the input unit permitting a user to modify the translation elements based on comparison with the aligned source device program elements.

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2. The system as recited in claim 1, wherein the source program is for a source device and the translation program is for a disparate target device.

15 3. The system as recited in claim 1, wherein the source program is a linear assembly file for a target device and the translation program is a scheduled assembly file for that device.

Please amend Claim 6 as follows.

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6. (Amended) The system as recited in claim 1, wherein the translation program is a context-dependent translation based on static analysis of the source program.

25 Please amend Claim 7 as follows.

7. (Amended) The system as recited in claim 1, wherein the back end further comprises:

a translator for performing a context-dependent translation, the translator comprising:

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a translation machine description for mapping source opcodes to target opcodes;

g<sup>2</sup>  
a source machine description containing a description of source opcodes and source operands in a generic representation;

a target machine description containing a description of target opcodes and target operands in a generic representation; and

5 wherein the translator receives a source instruction from the front end, utilizes the translation machine description and source machine description and target machine description to translate source elements into target elements.

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8. The system as recited 7, wherein the proper target opcode is chosen from a group of potential target opcodes by comparing the target opcode and target operand with the source opcode and source operand.

Please amend Claim 9 as follows.

15 N.E. 9. (Amended) The system as recited in claim 7, wherein two or more source opcodes can be combined to a single target opcode when there is a target opcode that represents the two or more source code opcodes.

10 10. The system as recited in claim 1, wherein the graphic user interface is a display processor.

Claim 11 has been amended as follows.

63 25 11. (Amended) The system as recited in claim 10, wherein the graphic user interface displays at least a portion of the source elements in a source window, at least a portion of the translation elements in a translation window, and the source and translation windows are displayed side-by-side.

30 12. The system as recited in claim 11, wherein corresponding groups of elements of the source and translation programs are aligned in the source and translation windows.

13. The system as recited in claim 11, wherein at least one of the source and translation windows is operable to display a status icon for an element in the window.

Please amend Claim 14 as follows.

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14. (Amended) A method for performing translation of a source device program into a translation program, the method comprising:

receiving a source device program;

identifying source elements in the source device program;

10 generating a translation program having translation elements by performing a context-dependent translation of the source elements;

displaying the translation elements in a graphic user interface, the graphic user interface receiving user inputs, the graphic user interface aligning the source elements and the translation elements, the aligned elements permitting a comparison of  
15 related source elements and translation elements; and

in response to user inputs, automatically regenerating selected translation elements based on the user inputs.

15. The method as recited in claim 14, wherein the source program is for a  
20 source device and the translation program is for a disparate target device.

16. The method as recited in claim 14, wherein the source program is a linear assembly program for a target device and the translation program is a scheduled assembly program for the target device.

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Please amend Claim 19 as follows.

19. (Amended) The method as recited in claim 14, further comprising:  
performing static analysis of the source elements in the source device  
30 program; and

performing context-dependent translation of the source elements based on the static analysis.

Please amend Claim 20 as follows.

NE. 20. (Amended) The method as recited in claim 14, wherein the step of  
5 generating a translation program further comprises:  
converting an opcode of a source device program to an opcode of a  
translation machine program by comparing the source opcodes to possible translation  
opcodes;  
converting the operand of the source opcode by comparing an operand of  
10 the source opcode in a generic expression with a generic expression for a translation  
operand; and  
combining the translation opcode and the translation operand to form a  
translation.

15 Please amend Claim 21 as follows.

FE 21. (Amended) The method as recited in claim 20, wherein the step of  
converting an opcode of the source program further comprises choosing a translation  
opcode from a group of potential translation opcodes by comparing the translation  
20 opcode and translation operand with the related source opcode and source operand.

22. The method as recited in claim 20, wherein the step of converting the  
source opcode further comprises the step of combining two or more source opcodes into a  
single translation opcode when there is a translation opcode that represents the two or  
25 more source opcodes.

Please amend Claim 23 as follows.

ET 23. (Amended) The method as recited in claim 14, wherein the graphic user  
30 interface includes a display processor.

[ Please amend Claim 24 as follows. ]

24. (Amended) The method as recited in claim 23, further comprising:  
displaying the source elements in a source window;  
displaying the translation elements in a translation window; and  
displaying the source and translation windows side-by-side in the display  
processor.

[ Please amend Claim 25 as follows. ]

25. The method as recited in claim 24, further comprising aligning  
corresponding groups of elements of the source and translation programs in the source  
and translation windows.

26. The method as recited in claim 24, further comprising displaying a status  
icon for an element in at least one of the source and translation windows.

Please amend Claim 27 as follows.

27. (Amended) A translation system for translating a source device  
program into a translation program for a target device, the system comprising:  
a computer capable of executing a program, and  
an interactive program for translating code for the source device into code  
for the target processor and capable of being executed on the computer; and  
a graphics interface system displaying source program elements proximate to  
corresponding translation program elements, the graphics interface system permitting a  
comparison of corresponding source program elements and translation program elements,  
the graphic interface unit having a user input device, the user input device permitting  
correction of the translation program elements by a user as a result of the comparison.